

Claims

1. A print system for printing print data provided from a print data supply device to a registered user or device that is authorized to access print data, the system comprising a print instruction
5 device and a print device,
 wherein the print instruction device includes
 a print instruction unit operable to transmit, to the print device, a print instruction to print the print data in the print data supply device, with authentication information given only to the
10 user or the device, and
 the print device includes:
 a data requesting unit operable to transmit the authentication information with the print instruction to the print data supply device and request the print data supply device to transmit the print data;
15 and
 a data receiving unit operable to receive the print data from the print data supply device.
2. The print system according to Claim 1,
20 wherein in the print instruction device,
 the print instruction unit includes
 a print instruction transmitting unit operable to transmit, to the print device, a print instruction to print the print data, and
 the print instruction transmitting unit transmits, to the print
25 device, the authentication information and the print instruction that are in one to one correspondence, and
 in the print device,
 the data requesting unit transmits the authentication information corresponding to the print instruction to the data supply
30 device and requests the print data.
3. The print system according to Claim 1,

wherein in the print instruction device,
the print instruction unit includes:

a print instruction information generating unit operable to
generate print instruction information that is obtained by
5 integrating print data position information indicating a storage
location of the print data with the authentication information; and

a print instruction information transmitting unit operable to
transmit the print instruction information to the print device, and
in the print device,

10 the data requesting unit i) extracts the print data position
information and the authentication information from the print
instruction information and ii) requests a transmission of the print
data indicated in the print data position information.

15 4. The print system according to Claim 3,
wherein in the print instruction device,
the print instruction unit transmits the print instruction
information to the print device through a secure communication
path established between the print instruction device and the print
20 device.

5. The print system according to Claim 3,
wherein in the print instruction device,
the print instruction unit further includes

25 a print instruction information storing unit operable to store
the generated print instruction information into a memory card
medium inserted to the print instruction device, and
in the print device,

the data requesting unit includes

30 a print instruction information reading unit operable to read
the print instruction information from the memory card medium
inserted to the print device, and

the data requesting unit extracts the print data position information and the authentication information from the read print instruction information.

- 5 6. The print system according to Claim 1,
 wherein in the print instruction device,
 the print instruction unit includes:

 a print instruction information generating unit operable to
generate print instruction information that is obtained by
10 integrating print data position information indicating a storage
location of the print data with the authentication information;

 a print instruction information transmission notifying unit
operable to notify the print device of a transmission of the print
instruction information; and

15 a print instruction information transmitting unit operable to
transmit the print instruction information to the print device after
the notification, and

 in the print device,

 the data requesting unit, according to the notification, i)
20 receives the print instruction information, ii) extracts the print data
position information and the authentication information from the
print instruction information, and iii) requests a transmission of the
print data indicated in the print data position information.

- 25 7. The print system according to Claim 6,

 wherein a communication path between the print instruction
device and the print device is a communication path composed of a
command communication path for transmitting and receiving a
command and a data communication path for securely transmitting
30 and receiving data,

 the print instruction information transmission notifying unit
notifies the print instruction information transmitting unit, through

the command communication path, to transmit the print instruction information, and

the print instruction information transmitting unit transmits, after receiving the notification, the print instruction information through the data communication path.

8. The print system according to Claim 1, wherein in the print instruction device, the print instruction unit includes:

a print instruction information generating unit operable to generate print instruction information obtained by integrating print data position information indicating a storage location of the print data with the authentication information; and

a position information notifying unit operable to notify the print device of position information indicating the storage location of the generated print instruction information, and

in the print device,

the data requesting unit i) understands the notification of the position information as a print instruction, ii) receives, based on the notified position information, the print instruction information from the print instruction device, iii) extracts the print data position information and the authentication information from the print instruction information, and iv) requests a transmission of the print data indicated in the print data position information.

9. The print system according to Claim 8,

wherein a communication path between the print instruction device and the print device is a command communication path for transmitting and receiving a command and a data communication path for securely transmitting and receiving data,

in the print instruction device,

the position information notifying unit notifies the print

device of position information of the print instruction information through the command communication path, and

in the print device,

the data requesting unit receives, based on the notified
5 position information, the print instruction information through the data communication path.

10. The print system according to Claim 1,

wherein the authentication information includes identification
10 information for identifying the authentication information,

in the print instruction device,

the print instruction unit includes:

an authentication information transmission history storing
unit operable to store a history of authentication information
15 transmitted to the print device; and

a transmission history judging unit operable to judge whether
or not authentication information to be transmitted to the print
device has been transmitted to the print device,

when the transmission history judging unit judges that the
20 authentication information has been transmitted to the print device,
the print instruction device transmits the print instruction with the
identification information instead of the authentication information,

the print device further includes

an authentication information storing unit operable to keep
25 storing the received authentication information even after the print
data has been printed,

the data requesting unit reads the authentication information
specified by the received identification information from the
authentication information storing unit and transmits said
30 authentication information to the print data supply device.

11. The print system according to Claim 1,

wherein in the print device,
the data receiving unit establishes an encrypted
communication path between the print device and the print data
supply device using the authentication information and receives the
5 print data through the encrypted communication path.

12. The print system according to Claim 1,
wherein the authentication information includes a decryption
key which is data for decrypting the encrypted print data.

10 13. The print system according to Claim 11,
wherein in the print device,
the data receiving unit includes:
an encrypted data receiving unit operable to receive the
15 encrypted print data; and
a print data decrypting unit operable to decrypt the received
print data using the authentication information.

14. The print system according to Claim 1,
20 wherein the authentication information includes information
for identifying the print instruction device or information for
identifying the user of the print system.

15. The print system according to Claim 14,
25 wherein the authentication information is a pair of an
identification (ID) of the print instruction device or an ID of the user
of the print system, with a password.

16. The print system according to Claim 15,
30 wherein the authentication information is described in the
print data position information.

17. The print system according to Claim 14,
wherein in the print device, the data requesting unit discards
the authentication information after the data receiving unit has
received the print data.

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18. The print system according to Claim 14,
wherein the print data supply device comprises:
a request receiving unit operable to receive a request of a
transmission of print data and authentication information
10 corresponding to the print data;
a user identifying unit operable to identify the print
instruction device or the user using the received authentication
information;
an authenticating unit operable to authenticate whether or
15 not the identified print instruction device or the user is authorized to
access the requested print data; and
a data transmitting unit operable to transmit the requested
print data to the print device if the access is permitted as the result
of the authentication.

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19. The print system according to Claim 18,
wherein the print instruction device has a communication
session with the print data supply device and obtains an
authentication from the authenticating unit before instructing the
25 printing,
the authentication information is communication session
information issued to the print instruction device from the print data
supply device in the communication session, and
the communication session information includes information
30 indicating that the print instruction device or the user has been
authorized to access the print data.

20. The print system according to Claim 19,
wherein in the print instruction device,
the print instruction unit includes

a communication session information storing unit operable to
5 store the communication session information issued from the print
data supply device through a communication path established in
advance between the print data supply device and the print
instruction device, and

the print instruction device transmits the print instruction by
10 attaching the communication session information as the
authentication information, and

in the print device,

the data requesting unit transmits the authentication
information to the print data supply device and requests a
15 transmission of the print data, and

the print data supply device receives the authentication
information that is the communication session information, skips
processes in the user identifying unit and the authenticating unit
and transmits the requested print data to the print device.

21. The print system according to Claim 20,

wherein the communication session information is a Cookie
issued to the print instruction device by the print data supply device.

22. The print system according to Claim 15,

wherein the authentication information includes a public key
of a certificate authority for verifying a public key certificate of the
print data supply device,

in the print device,

the encrypted communication path establishing unit, while
30 verifying that the print data supply device is an authorized access
destination using the public key of the certificate authority,

establishes a Secure Socket Layer (SSL) or a Transport Layer Security (TLS) between the print data supply device and the print device, and

in the print data supply device,

5 the data transmitting unit transmits the requested print data to the print device through the SSL or the TLS.

23. The print system according to Claim 18,

10 wherein the authentication information further includes a public key of a certificate authority for verifying a public key certificate of the print data supply device.

24. The print system according to Claim 1,

wherein in the print device,

15 the data requesting unit discards the authentication information after transmitting the authentication information to the print data supply device,

the print data supply device includes:

20 a user identifying unit operable to identify the print instruction device or the user using the received authentication information;

an authenticating unit operable to verify whether or not the identified print instruction device or the identified user has been authorized to access the requested print data; and

25 a data transmitting unit operable to, when the access is permitted as the result of the authentication, newly issue authentication information that can be used continuously by the print device and transmit the requested print data to the print device.

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25. The print system according to Claim 24,

wherein the authentication information to be newly issued is

a pair of an identification (ID) of the print data supply device with a password, or communication session information between the print data supply device and the print device.

5 26. The print system according to Claim 1,
 wherein the print device discards the authentication
 information after the printing of the print data is completed.

10 27. The print system according to Claim 1,
 wherein in the print instruction device,
 the print instruction unit transmits the authentication
 information to the print device through a secure communication
 path established between the print device and the print instruction
 device.

15 28. The print system according to Claim 1,
 wherein the print instruction device and the print data supply
 device are included in a same device.

20 29. The print system according to Claim 1,
 wherein the print instruction device and the print device are
 connected to each other by a Bluetooth (TM).

25 30. A print device in a print system for printing print data
 provided from a print data supply device to a registered user or
 device that is authorized to access the print data, the print system
 comprising a print instruction device and a print device, the print
 device including:

30 a data requesting unit operable to i) receive a print
 instruction to print the print data in the print data supply device with
 authentication information given only to the user or the device by
 the print instruction device, ii) transmit the authentication

information according to the print instruction to the print data supply device, and iii) request to transmit the print data, and

a data receiving unit operable to receive the print data from the print data supply device.

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31. The print device according to Claim 30,

wherein the data requesting unit i) receives, from the print instruction device, a print instruction to print the print data and the authentication information in one to one correspondence, ii)
10 transmits the authentication information corresponding to the print instruction to the print data supply device, and iii) requests the print data.

32. The print device according to Claim 30,

15 wherein the data requesting unit i) receives, from the print instruction device, print instruction information that is obtained by integrating the print data position information indicating a storage location of the print data with the authentication information, ii)
extracts the print data position information and the authentication
20 information from the print instruction information, and iii) requests to transmit print data indicated in the print data position information.

33. The print device according to Claim 30,

25 wherein the data requesting unit i) receives, from the print instruction device, print instruction information that is obtained by integrating the print data position information indicating the storage location of the print data with the authentication information according to a notification from the print instruction device
30 indicating to transmit the print instruction information, ii) extracts the print data position information and the authentication information from the print instruction information, and iii) requests

a transmission of the print data indicated in the print data position information.

34. The print device according to Claim 30,

5 wherein the data requesting unit i) receives, from the print instruction device, a notification of position information indicating a storage location of print instruction information that is obtained by integrating print data position information indicating a storage location of the print data with the authentication information, ii)
10 recognizes the notification of the position information as a print instruction, iii) receives the print instruction information from the print instruction device based on the notified position information, iv) extracts the print data position information and the authentication information from the print instruction information,
15 and v) requests a transmission of print data indicated in the print data position information.

35. The print device according to Claim 30,

20 wherein the authentication information includes identification information for identifying the authentication information,
 the print device further includes

 an authentication information storing unit operable to keep storing the received authentication information even after the print data has been printed, and

25 the data requesting unit i) receives, from the print instruction device, the print instruction with the identification information, ii) reads out the authentication information specified by the received identification information from the authentication information storing unit, and iii) transmits said authentication
30 information to the print data supply device.

36. The print device according to Claim 30,

wherein the data receiving unit i) establishes an encrypted communication path between the print data supply device and the print device using the authentication information, and ii) receives the print data through the encrypted communication path.

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37. The print device according to Claim 30,
wherein the authentication information includes a decryption key that is data for decrypting the encrypted print data.

10 38. The print device according to Claim 30,
wherein the authentication information includes information for identifying the print instruction device or information for identifying a user of the print system.

15 39. The print device according to Claim 30,
wherein the data requesting unit newly receives, from the print data supply device, authentication information that can be used in continuation, after transmitting the authentication information to the print data supply device and after discarding the
20 authentication information, and

the data receiving unit receives the requested print data from the print data supply device.

25 40. The print device according to Claim 39,
wherein the authentication information to be newly issued is a pair of an identification (ID) of the print data supply device and a password or communication session information between the print data supply device and the print device.

30 41. The print device according to Claim 30,
wherein the data receiving unit discards the authentication information after the printing of the print data is completed.

42. A print instruction method for a print device in a print system for printing print data provided, from a print data supply device, to a registered user or device that is authorized to access the print data, the print system comprising a print instruction device and the print
5 device, the method includes

a print instruction step of transmitting, to the print device, an print instruction to print the print data in the print data supply device with authentication information given only to the user or the device.

10 43. The print instruction method according to Claim 42, wherein the print instruction step includes

a print instruction transmission step of transmitting, to the print device, a print instruction to print the print data,

15 in the print instruction transmission step, the authentication information is transmitted to the print device in one to one correspondence with the print instruction.

20 44. The print instruction method according to Claim 42, wherein the print instruction step includes:

a print instruction information generation step of generating print instruction information that is obtained by integrating print data position information indicating a storage location of the print data with the authentication information; and

25 a print instruction information transmission step of transmitting the print instruction information to the print device.

45. The print instruction method according to Claim 42, wherein the print instruction step includes:

30 a print instruction information generation step of generating print instruction information that is obtained by integrating print data position information indicating a storage location of the print

data with the authentication information;

a print instruction information transmission notification step of notifying the print instruction device to transmit the print instruction information; and

5 a print instruction information transmission step of transmitting the print instruction information to the print device after the notification.

46. The print instruction method according to Claim 42,
10 wherein the print instruction step includes:

a print instruction information generation step of generating print instruction information integrating print data position information indicating a storage location of the print data with the authentication information; and

15 a position information notification step of notifying the print device of position information indicating a storage location of the generated print instruction information.

47. A print instruction device in a print system for printing print
20 data provided, from a print data supply device, to a registered user or device that is authorized to access the print data, the print system comprising a print instruction device and a print device, the print instruction device including

a print instruction unit operable to transmit, to the print
25 device, a print instruction indicating to print the print data in the print data supply device with the authentication information given only to the user or the device.

48. A program for a print device in a print system for printing
30 print data provided from a print data supply device to a registered user or device that is authorized to access the print data, the program causing a computer to function as a data requesting unit

operable to i) receive a print instruction to print the print data in the print data supply device with authentication information given only to the user or the device from the print instruction device, ii) transmit the authentication information according to the print instruction to the print data supply device, and iii) request a transmission of the print data, and as a data receiving unit operable to receive the print data from the print data supply device.